IN THE CLAIMS:

1. **(Previously Presented)** A system for mounting vehicle wheels, each having an axial pilot hole and a plurality of radially spaced lug holes disposed in one of a plurality of symmetric and axially centered configurations, about a spindle shaft of a vehicle wheel balancer, comprising:

a single mounting flange assembly configured for placement on the spindle shaft, said single mounting flange assembly including a flange plate and a plurality of mounting pins, each of said plurality of mounting pins including a guide pin adapted for engagement with said flange plate and a contact tip adapted for engagement with the plurality of radially spaced lug holes; and

wherein said single mounting flange assembly is configured to provide infinite radial adjustment of said contact tips about the spindle shaft between a minimum radial dimension and a maximum radial dimension to engage each of the plurality of radially spaced lug holes for a plurality of symmetric and axially centered vehicle wheel lug hole configurations each having a different number of lug holes.

2. **(Previously Presented)** A system for mounting vehicle wheels, each having an axial pilot hole and a plurality of radially spaced lug holes disposed in one of a plurality of symmetric and axially centered configurations, about a spindle shaft of a vehicle wheel balancer, comprising:

a single mounting flange assembly configured for placement on the spindle shaft, said single mounting flange assembly including a flange plate and a plurality of mounting pins, each of said plurality of mounting pins including a guide pin adapted for

engagement with said flange plate and a contact tip adapted for engagement with the plurality of radially spaced lug holes;

wherein said single mounting flange assembly is configured to provide infinite radial adjustment of said contact tips about the spindle shaft between a minimum radial dimension and a maximum radial dimension to engage the plurality of radially spaced lug holes for a plurality of symmetric and axially centered configurations each having a different number of lug holes; and

at least one double-tapered centering cone having a first tapered surface increasing in diameter from a first end, and a second tapered surface increasing in diameter from a second end axially opposite said first end, said double-tapered centering cone configured for placement on the spindle shaft and having an identifying indicia.

3. (Previously Presented) The system of Claim 1 for mounting a vehicle wheel wherein said single mounting flange assembly further includes an adjusting plate rotationally coupled to said flange plate, said adjusting plate and said flange plate cooperatively defining a plurality of radially spaced unobstructed passages configured to receive said mounting pin guide pins; and

wherein rotational movement of said adjusting plate relative to said flange plate alters a radial position of each of said unobstructed passages.

4. (Withdrawn) The system of Claim 1 for mounting a vehicle wheel wherein said single mounting flange assembly further includes a plurality of adjacent discrete detent positions configured to receive said mounting pins; and

wherein each of said plurality of mounting pins further includes a radially compliant tip.

5. (Withdrawn) The system of Claim 4 for mounting a vehicle wheel wherein each of said radially compliant tips includes a spherical contact tip coupled to said mounting pin on a ball and socket joint configured for limited articulation.

6. (Withdrawn) The system of Claim 4 for mounting a vehicle wheel wherein each of said radially compliant tips includes an axially restrained tip configured for a limited range of radial compliance.

7. (Withdrawn) The system of Claim 4 for mounting a vehicle wheel wherein each of said radially compliant tips is configured with a limited range of radial compliance, and wherein each limited range of radial compliance overlaps a limited range of radial compliance associated with a mounting pin in an adjacent discrete detent position.

8. (Cancelled)

9. (Previously Presented) The system of Claim 2 wherein said at least one centering cone further includes:

a central hole in said centering cone for axially guiding said centering cone on the spindle shaft;

a first tapered outer surface having a first minimum diameter adjacent a first end of said centering cone; and

a second tapered outer surface having a second minimum diameter adjacent a second end of said centering cone, opposite said first end.

10. (Cancelled)

11. (Cancelled)

12. (Cancelled)

13. (Cancelled)

14. (Cancelled)

15. (Cancelled)

16. (Cancelled)

17. (Cancelled)

18. (Cancelled)

19. (Cancelled)

20. (Previously Presented) A single adjustable mounting flange assembly for mounting a variety of vehicle wheels, each having a different lug pattern, on the shaft of a balancing machine, comprising:

a flange plate having a central bore extending from a front face to a rear face;

an adjusting plate disposed adjacent said rear face and coupled to said flange plate for coaxial rotational movement relative to said flange plate;

a plurality of slots passing through said flange plate;

a plurality of slots passing through said adjusting plate; and

wherein said plurality of slots in said flange plate and said plurality of slots in said adjusting plate cooperatively define a plurality of axially symmetric sets of unobstructed passages through said adjustable mounting flange, each of said axially symmetric sets including at least three unobstructed passages and corresponding to each lug hole in a wheel lug pattern; and

wherein each of said unobstructed passages in each of said axially symmetric sets is disposed at a common radial distance from an axis of said central bore, said common radial distance associated with a rotational position of said adjusting plate.

21. (Previously Presented) The adjustable mounting flange assembly of Claim 20 wherein said plurality of slots passing through said flange plate include at least one set of circumferentially equidistant spaced slots, said slots in said set having a common configuration selected from a set of configurations including radial, arcuate, or skewed; and

wherein said plurality of slots passing through said adjusting plate include at least one set of circumferentially equidistant spaced slots, said slots in said set having a common configuration selected from a set of configurations including radial, arcuate, or skewed and which is different from said common configuration of said slots in said flange plate.

22. (Previously Presented) The adjustable mounting flange assembly of Claim 20 wherein each of said unobstructed passages is configured to receive a mounting pin.

23. (Previously Presented) The adjustable mounting flange assembly of Claim 20 wherein a range of rotational movement of said adjusting plate about said central axis corresponds with a range of radial movement of each of said unobstructed passages in said set of unobstructed passages between an inner radial position and an outer radial position.

24. (Previously Presented) The adjustable mounting flange assembly of Claim 20 wherein a plurality of subsets of said slots passing through said flange plate

are disposed in annular patterns corresponding to annular patterns of vehicle wheel lug holes; and

wherein a plurality of subsets of said slots passing through said adjusting plate are disposed in annular patterns corresponding to annular patterns of vehicle wheel lug holes.

25. (Previously Presented) The adjustable mounting flange assembly of Claim 24 wherein each slot in a subset includes identifying indicia associated with said respective subset.

26. (Previously Presented) A method for securing a vehicle wheel having a plurality of lug holes on the spindle of a balancing machine with the single adjustable mounting flange assembly of Claim 20, comprising the steps of:

identifying a lug hole pattern on the vehicle wheel;

rotationally aligning said adjusting plate with said flange plate such that at least one of said plurality of axially symmetric sets of unobstructed passages through said adjustable mounting flange correspond to each lug hole said identified lug hole pattern;

installing a plurality of mounting pins in each unobstructed passage in said aligned set of unobstructed passages;

mounting said adjustable mounting flange on the balancer spindle;

aligning each of said plurality of mounting pins with a lug hole; and

urging said mounting flange towards said vehicle wheel, engaging each of said plurality of mounting pins with said lug holes, whereby said vehicle wheel is centrally secured about said balancer spindle.

27. **(Original)** The method of Claim 26 for securing a vehicle wheel wherein the step of aligning further includes the step of rotating said adjusting plate relative to said flange plate, whereby a radial position of each of said mounting pins is altered.

28. **(Original)** The method of Claim 27 for securing a vehicle wheel wherein each of said mounting pins has a common radial position; and wherein said radial position of each of said mounting pins is altered simultaneously and equally.

29. **(Withdrawn)** A single mounting flange for mounting a variety of vehicle wheels having different numbers of lug holes and different lug patterns on the shaft of a balancing machine which comprises:

a flange plate having an axial bore extending from a front face to a rear face;

a plurality of nonexclusive symmetric sets of slots passing through said flange plate, each set of slots in said plurality of sets of slots corresponding to a wheel lug hole pattern with a different number of lug holes; and

wherein each of said slots in said sets of slots is associated with two or more discrete detents, each of said two or more discrete detents defining a predetermined radial position from said axial bore.

30. **(Withdrawn)** The single mounting flange of Claim 29 wherein each of said discrete detents is disposed on said rear face of said flange plate adjacent said associated slot.

31. **(Withdrawn)** The single mounting flange of Claim 29 wherein each of said discrete detents is disposed on an inner surface of said associated slot.

32. **(Cancelled)**.

33. **(Cancelled)**.

34. (Withdrawn) The single mounting flange of Claim 29 wherein each of said slots in each of said sets has a common minimum radial displacement discrete detent and a common maximum radial displacement discrete detent.

35. (Withdrawn) The single mounting flange of Claim 29 wherein each slot in each of said sets has a common configuration selected from a set of configurations including radial, arcuate, or skewed.

36. (Withdrawn) The single mounting flange of Claim 29 further including a guide plate coaxial with said flange plate, said guide plate including a plurality of guide holes disposed in one or more predetermined vehicle wheel lug patterns, said plurality of guide holes aligned with one of said plurality of sets of slots.

37. (Withdrawn) A single mounting flange for mounting a variety of vehicle wheels each having different lug hole numbers and patterns on the shaft of a balancing machine which comprises:

a flange plate having a central bore extending from a front face to a rear face;

a plurality of sets of mounting pin receiving bores, each of said sets of mounting pin receiving bores corresponding to a different number of axially symmetric wheel lug holes, and including a plurality of adjacent mounting pin receiving bores passing through said flange plate; and

wherein each mounting pin receiving bore in said plurality of adjacent mounting pin receiving bores partially overlaps at least one adjacent mounting pin receiving bore.

38. (Cancelled)

39. **(Withdrawn)** The single mounting flange of Claim 37 wherein subsets of said plurality of sets are annularly disposed in predetermined relationships corresponding to at least one vehicle wheel lug hole pattern.

40. **(Withdrawn)** The single mounting flange of Claim 39 wherein an identifying indicia is associated with each of said subsets.

41. **(Withdrawn)** The single mounting flange of Claim 37 wherein each of said sets of mounting pin receiving bores includes a plurality of adjacent mounting pin receiving bores disposed about a common radial line from an axis of said central bore.

42. **(Withdrawn)** The single mounting flange of Claim 37 wherein each of said sets of mounting pin receiving bores includes a plurality of adjacent mounting pin receiving bores disposed about a common arcuate line from an axis of said central bore.

43. **(Withdrawn)** The single mounting flange of Claim 37 wherein each of said sets of mounting pin receiving bores includes a plurality of adjacent mounting pin receiving bores disposed about a common skewed line from an axis of said central bore.

44. **(Cancelled)**

45. **(Cancelled)**

46. **(Cancelled)**

47. **(Cancelled)**

48. **(Cancelled)**

49. **(Cancelled)**

50. **(Cancelled)**

51. (Cancelled)

52. (Cancelled)

53. (Cancelled)

54. (Cancelled)

55. (Cancelled)

56. (Cancelled)

57. (Cancelled)

58. (Cancelled)

59. (Cancelled)

60. (Withdrawn) A single mounting assembly for mounting a variety of vehicle wheels each having different lug hole numbers and patterns on the shaft of a balancing machine which comprises:

a mounting flange plate disposed on the shaft of the balancing machine, said mounting flange plate having a central bore extending from a front face to a rear face and a plurality of sets of mounting pin receiving bores, each of said sets of mounting pin receiving bores including a plurality of adjacent mounting pin receiving bores passing through said mounting flange plate; and

a set of mounting pins configured for engaging a corresponding set of vehicle wheel lug holes, each of said mounting pins in said set including a contact tip configured to be radially compliant within a limited range about an axis of said mounting pin; and

wherein said plurality of adjacent mounting pin receiving bores and said radially compliant contact tips are cooperative to provide infinite radial adjustment within a predetermined range of lug hole pattern diameters.

61. (Previously Presented) The system of Claim 1 wherein said single mounting flange assembly further includes:

an adjusting plate coupled adjacent a rear face of said flange plate for coaxial rotational movement relative to said flange plate about a central axis;

a first plurality of slots passing through said flange plate;

a second plurality of slots passing through said adjusting plate; and

wherein said first and second pluralities of slots cooperatively define at least one set of unobstructed passages through said flange plate and adjusting plate; and

wherein each of said unobstructed passages in a set of unobstructed passages is configured to receive a guide pin and is disposed at a common radial distance from an axis, said common radial distance associated with a rotational position of said adjusting plate.

62. (Previously Presented) The system of Claim 61 wherein said first plurality of slots passing through said flange plate includes at least one set of circumferentially equidistant spaced slots, said slots in said set having a common configuration selected from a set of configurations including radial, arcuate, or skewed; and

wherein said second plurality of slots passing through said adjusting plate include at least one set of circumferentially equidistant spaced slots, said slots in said

set having a common configuration selected from a set of configurations including radial, arcuate, or skewed.

63. (Previously Presented) The system of Claim 61 wherein a range of rotational movement of said adjusting plate about said central axis corresponds with a range of radial movement of each of said unobstructed passages in said set of unobstructed passages between an inner radial position and an outer radial position.

64. (Previously Presented) The system of Claim 61 wherein at least one subset of said slots is disposed in an annular pattern corresponding to each lug hole in an annular pattern of a set of vehicle wheel lug holes.

65. (Withdrawn) The system of Claim 1 wherein said single mounting flange assembly further includes:

a plurality of slots passing through said flange plate, each of said slots associated with a plurality of discrete detents;

wherein each of said discrete detents defines a predetermined radial position from an axis of said flange plate; and

wherein each of said plurality of mounting pins further includes a radially compliant tip having limited range of radial compliance such that each limited range of radial compliance partially overlaps at least one limited range of radial compliance associated with a mounting pin engaged with an adjacent discrete detent of a slot.

66. (Withdrawn) The system of Claim 1 wherein said flange plate further includes:

a plurality of sets of mounting pin receiving bores annularly disposed in predetermined relationships corresponding to at least one vehicle wheel lug hole

pattern, each of said sets of mounting pin receiving bores including a plurality of adjacent mounting pin receiving bores passing through said flange plate;

wherein each of said adjacent mounting pin receiving bores partially overlaps at least one adjacent mounting pin receiving bore; and

wherein each of said plurality of mounting pins further includes a radially compliant tip having limited range of radial compliance such that each limited range of radial compliance partially overlaps at least one limited range of radial compliance associated with a mounting pin disposed in an adjacent mounting pin receiving bore.

67. (Withdrawn) The system of Claim 66 wherein each adjacent mounting pin receiving bore in a set of mounting pin receiving bores is disposed along a common line, said common line selected from a set of radial lines, arcuate lines, and radially skewed lines.

68. (New) The system of Claim 1 wherein said single mounting flange assembly further includes:

an adjusting plate coupled adjacent a rear face of said flange plate for coaxial rotational movement relative to said flange plate;

a first plurality of radial slots passing through said flange plate;

a second plurality of arcuate slots passing through said adjusting plate; and

wherein said first and second pluralities of slots cooperatively define at least one set of unobstructed passages through said flange plate and adjusting plate; and

wherein each of said unobstructed passages in a set of unobstructed passages is configured to receive a guide pin and is disposed at a common radial distance from

an axis, said common radial distance associated with a rotational position of said adjusting plate.

69. (New) The system of Claim 61 wherein said first plurality of slots passing through said flange plate includes a plurality of sets of circumferentially equidistant spaced slots; and

wherein said second plurality of slots passing through said adjusting plate include a plurality of sets of circumferentially equidistant spaced slots, each set of slots in said plurality of sets passing through said adjusting plate associated with a set of slots in said plurality of sets passing through said flange plate.

70. (New) The adjustable mounting flange assembly of Claim 20 wherein said plurality of slots passing through said flange plate include at least one set of circumferentially equidistant spaced radial slots; and

wherein said plurality of slots passing through said adjusting plate include at least one set of circumferentially equidistant spaced arcuate slots.